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AUTHOR	Greenberger, Ellen; And Others
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ABSTRACT

This paper reports progress in the development of a new Psychosocial Maturity Inventory. The subscales assess Self-reliance, Work Orientation, and Identity--theoretically, aspects of Individual Adequacy; Communication Skills, Knowledge of Major Roles, and Enlightened Trust--conceptualized as aspects of Interpersonal Adequacy; and Social Commitment, Tolerance, and Openness to Socio-political Change--viewed as aspects of Social Adequacy. Using a sample of 2,568 students divided among grades 5, 8, and 11, a single subscale of each trait was developed for use at all three grade levels. Kuder Richardson Formula 8 estimates of subscale homogeneity are presented, along with data demonstrating the relationship of each subscale to Social Desirability scores, to measures of three divergent traits, nd to chronological maturity (grade level). The validity of the conceptual model of psychosccial maturity, i.e., the arrangement of traits into three groups reflecting different types of adequacy, is tested empirically by (1) analysis of subscale intercorrelations, (2) hiearchical factor analysis of items, and (3) principal components analysis of subscale scores. (Author)

ED 096359

THE MEASUREMENT AND STRUCTURE OF PSYCHOSOCIAL MATURITY

CONTRACT NO. NE-C-00-3-0113

WORK UNIT NO. 1

Milestone H

ELLEN GREENBERGER

CLARAMAE KNERR

BRUCE KNERR

JOAN BITNER BROWN

REPORT NO. 170

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The Johns Hopkins University

Baltimore, Maryland

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Schools and Maturity program is studying the effects of school, family, and peer group experiences on the development of attitudes consistent with psychosocial maturity. The objectives are to formulate, assess, and research important educational goals other than traditional academic achievement. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. The Careers program (formerly Careers and Curricula) bases its work upon a theory of career development. It has developed a self-administered vocational guidance device and a self-directed career program to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

This report, prepared by the Schools and Maturity program, describes further work on the development and validation of a Psychosocial Maturity Inventory.

ACKNOWLEDGMENT

We acknowledge gratefully our debt to the South Carolina State Department of Education. Dr. W. E. Ellis, Director of the Office of Research, gave his approval to and allocated valuable Department resources for the conduct of this study. Mr. Charles Statler took responsibility for selecting the sample, obtaining the cooperation of county and district superintendents, and directing field personnel. He also handled initial contacts with school personnel and oversaw the production of materials and forms. His able assistant in these tasks was James Bush. Mr. Bush and Mrs. Da Maris Watts were dedicated and persistent in their roles as field administrators of the study. We also wish to thank Dr. Albert Link who originally drew the attention of the State Department of Education to this project and played an early role in establishing our collaboration. Ruthellen Josselson, Daniel McConochie and Aage B. Sørensen provided helpful commentary on an earlier draft of this paper.

INTRODUCTION

Research on socialization and human development focuses on a wide variety of distinct traits, attitudes and values. There are, however, few comprehensive, generally accepted conceptualizations which integrate goals of socialization (i.e., attributes of individuals required to make a society function smoothly) with goals of development (i.e., attributes which represent the optimal growth of the individual in his own right); and which indicate what the ideal end-products of socialization and development might be.[1] As the educational community has become more interested in the school's impact on the "affective domain" -- more accurately, on children's attitudes, values and personal dispositions -- the need for an integrative model of social and personal development and means for assessing this development has become apparent.[2] An integrative model of development, based on a concept of psychosocial maturity, has been formulated by Greenberger and Sørensen (1973). A brief summary of the concept follows here.

The concept of maturity implies an end-product that is capable of survival. The concept of psychosocial maturity is concerned with the survival of both the person and the society. Psychosocial maturity is reflected in three general capacities, which correspond to three general demands made by <u>all</u> societies on individuals. They are (a) the capacity to function effectively on one's own; (b) the capacity to interact ade-

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[1] For example, Inkeles' (1961) model emphasizes an effectively functioning society, while Erikson's (1950) model emphasizes constructive personal and interpersonal dispositions.

[2] Thirty-five states now have programs concerned in some degree with the assessment of personal and social attitudes.

quately with others; and (c) the capacity to contribute to social cohesion. That is, in all societies, "socialized" and "developed" individuals should be self-sufficient in some degree and take responsibility for their own survival; should be able to relate to others in stable and predictable ways; and should be able to recognize threats to, and invest in restoring, social solidarity.

In different societies, the specific attributes which serve as indicators of these general capacities may vary considerably. For this society, it has been argued that the nine attributes listed and described briefly in Table 1 are indicators of the three general capacities of mature individuals (Greenberger and Sørensen, 1973). These attributes are not conceived as being independent of one another, either within or between categories. Furthermore, attributes located in one category -- i.e., described as relevant to one of the "general capacities" mentioned above -- may also, in fact, be relevant to other categories. Thus, a Work Orientation contributes not only to individual adequacy but to social adequacy, and in certain situations, interpersonal adequacy. Theoretically, individuals develop attributes of maturity over the major period of socialization and development: the period from childhood through adolescence. Schools, therefore, have the potential to influence and monitor children's growth toward psychosocial maturity.

TABLE 1 ABOUT HERE

A major purpose of this paper is to report progress toward the development of an inventory that assesses traits specified by the model of psychosocial maturity. The objective of this developmental effort has been the creation of a single inventory for use at grade levels from five through eleven. The creation of a single inventory would facilitate studies of the same individuals over time and the study of different individuals at various ages --all assessed by means of the same instrument. A second purpose of the paper is to test the theoretical relationships specified by the model of psychosocial maturity against empirical data concerning the relationships among items and scales.

METHOD

Subjects. A total of 2,568 children participated in the study. They constituted a stratified random sample of youngsters in the public schools of South Carolina at each of grades 5, 8, and 11. Stratification dimensions were (a) degree of urbanness of school and (b) racial composition of school. The final sample, discussed below, consisted of 2,291 children: 729 fifth graders, 925 eighth graders, and 637 eleventh graders.[1] Characteristics of the sample are summarized in Table 2. School characteristics are not described in this Table nor discussed in this paper, but will be the topic of a subsequent report concerned with sources of variation in psychosocial maturity.

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[1] Since missing data create problems in the computation of scale scores, respondents in the original sample were eliminated if they failed to reply to 12 or more of the 367 items in the inventory. This arbitrary criterion, decided after inspection of the entire data set, resulted in a loss of 10.79% of the subjects but a consequent 89.44% reduction of item-omissions. Appendix A contains data pertinent to both the effects of eliminating respondents on completeness of data and the reasons that appear to underlie omission of items.

TABLE 2 ABOUT HERE

In general, more than one-third of the sample at each grade level is black; girls are from 5% to 10% more numerous than boys; and mean father's education for the respondents who supplied this information has a value close to "4", which represents a completed high school education.[1] Children in grade 8 are somewhat more likely than the others to be white and to have better educated fathers.

Procedures. Three hundred forty-nine items were written to assess psychosocial maturity.[2] The "correct" direction of response was determined a priori, in accordance with the theory of psychosocial maturity sketched in Table 1. Approximately half the items on each scale were worded so that an "agree" response was correct, and half in such a way that a "disagree" response was correct. Each item was answered on a four-point scale, the intervals of which were labelled "strongly agree," "agree slightly," "disagree slightly," and "strongly disagree." The successive response intervals were subsequently scored 4, 3, 2, and 1, with the high

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1 Reduction of the sample to mitigate the problems of missing data had its main effect among the oldest children, where the problem was greatest. At grade 11, the final sample (compared to the original) contained 3.4% more whites, 2.3% fewer blacks, and 6.7% less missing data on race. The per cent girls was 3.5% greater than in the original sample. Mean father's education (for those respondents who gave information) was virtually unaffected, but the amount of missing data was reduced 8.27%.

2 Items were written by the first author (E.G.), who makes no claim for the originality of many of the PSM items. Many tests were examined for ideas and some items were adapted for use in the inventory. In addition other tests form part of the author's "apperceptive mass" and undoubtedly influenced the inventions.

score representing the most mature response. In addition to taking the PSM inventory, respondents answered 18 items from the Crowne-Marlowe (1964) social desirability scale; and three other items, each corresponding to a trait presumed relevant to the divergent validity of the PSM subscales. The divergent traits were activity level, learning ability, and originality, evaluated by responses on a four-point scale of agreement-disagreement to the following statements: "I am always on the go," "I learn things easily and remember them well," and "I do not have a lot of original ideas" (scoring reversed).[1] Finally, respondents provided information on parental education and occupation, family composition, and participation in school activities.

Test-responses were marked on optically scannable answer sheets. Test administrators were classroom teachers. Tests were administered in two one-hour sessions to 11th graders and in two or more one-hour sessions to 8th and 5th graders. Respondents were told they were participating in a statewide project concerned with learning more about how young people feel about themselves, other people, and the world. They were assured that the confidentiality of their answers would be preserved at all times. (Answer booklets were put in envelopes and locked in the school safe between testing sessions.)

Analyses. The following analyses were conducted: (a) item analyses to reduce the length of subscales and improve their internal consistency; (b) various analyses pertinent to the validity of the subscales, and (c) at grade 11 only, an hierarchical factor analysis and principal components analy-

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[1] The convergent validity of the PSM subscales has been examined in a study relating PSM scores to teacher ratings of students on the nine PSM traits (Josselson, Greenberger and McConochie, 1974).

sis. The first two efforts, (a) and (b), are relevant to scale development; the remaining analyses, described in (c), concern the structure of the PSM inventory and the relationship of this empirical structure to the theoretical model of psychosocial maturity (Table 1).

RESULTS

Item analyses

Item-to-test correlations for the nine original subscales, hereafter referred to as Form A, were computed separately at each grade level. The objective of the ensuing item analysis was a single, briefer, set of subscales for use at all three grade levels, characterized by the maximum mean internal consistency across the three grades. Consequently, any item eliminated because of low item-to-test correlation was cast out at all three grade levels. The resulting inventory, or Form B, contains 188 items (compared to 349 items in Form A), with an average subscale-length of 20.9 items (compared to 38.7 in Form A). Table 3 presents sample items from the PSM inventory, Form B.[1]

TABLE 3 ABOUT HERE

Internal consistency estimates for each subscale and grade level

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[1] While all aspects of the nine PSM traits detailed in Table 1 were included in the original inventory, elimination of items caused certain aspects to be diminished or omitted in Form B. These details are given in Appendix B.

were computed using Kuder Richardson formula 8 (Kuder and Richardson, 1937).[1,2] KR 8 estimates for the Form B subscales are given in Table 4. Table 4 reveals that all subscales at grades 11 and 8 yield internal consistency estimates of .70 or higher, and that five of the nine subscales at grade 5 reach this level. Appendix C presents the internal consistency estimates for both Form A and Form B.

TABLE 4 ABOUT HERE

The increase of internal consistency with advancing grade level may be due to random responding at grade 5 due to reading and comprehension difficulties, and/or a "true" increase in the consistency (coherence) of attitudes with increasing age (Greenberger et al., 1971, pp. 33 - 34).

An unanticipated by-product of selectively eliminating items in order to increase internal consistency was the retention of items for which the "mature" answer most often lies in the disagree direction. (In the Form B subscales 80% of the items have this characteristic.) A subsequent analysis of the eliminated items for each subscale, for which the

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1 This measure entails fewer assumptions than the more commonly used formulae 20 and 21. Specifically, KR 8 assumes only that the item intercorrelation matrix has a rank of one, i.e., that the subscale measures only one factor, while KR 20 and KR 21 assume in addition that all item intercorrelations and standard deviations are equal. (If these additional assumptions are met, KR 8 and KR 20 will produce identical reliability estimates. If they are not met, KR 8 will produce higher reliability estimates than KR 20.)

2 The Social Desirability scale was also altered by reducing it from 18 to 15 items for use with the Form B PSM subscales. Internal consistency estimates for the shortened scale are .62, .69, and .75, respectively, for grades 5, 8, and 11.

mature responses lie largely in the "agree" direction, yielded low estimates of internal consistency, suggesting that a consistent direction of responding was not sufficient to yield a high estimate of scale homogeneity. It seems plausible that the capacity to disagree with a given sentiment or opinion may itself be related to psychosocial maturity in that negation of a proposition requires an independent and differentiated assessment.[1] In order to disagree with an item, the individual must take stock of his own values and beliefs and experience a conviction in them which is strong enough to cause him to exclude the given item from his sense of what is true "for him".[2] (Subjects low on maturity, lacking clear self-definition, may overinclude ideas and beliefs.) The capacity to disagree with statements about one's views may reflect psychosocial maturity in the same way that the propensity to agree with strongly worded statements reflects an underlying authoritarian disposition. If this is so, items with which respondents must disagree may in fact have more power to discriminate differences in respondents' maturity.

Validity of the PSM Subscales

Following the determination of the Form B PSM subscales, subscale scores were calculated for each subject on the nine subscales and on the Social Desirability scale. Since a few omissions still remained in the data set (see Appendix A), mean scores, rather than total subscale scores, were calculated. This was accomplished by dividing each subject's

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[1] We are grateful to Ruchellen Josselson for the formulation which follows.

[2] Self-theorists have long maintained that it is such exclusiveness which forms the core of the self; i.e. the differentiation of the self proceeds as the self rejects possibilities for itself and redefines and clarifies what it does include.

total subscale score by the number of items in that subscale that he answered. The resulting score was equivalent to that which would have been obtained if the subject's mean subscale score had been substituted for each omission.

Two types of information were examined to obtain preliminary evidence for the validity of the PSM subscales. First, mean subscale scores for the three grade levels were compared. Increases in these scores with increasing grade level would be consistent with the theory that PSM is a product of socialization and development, which advance as the child grows older. Second, correlations among the subscale scores and measures of other traits were examined. Foremost among these was social desirability; additionally, the relationship of activity level, learning ability and originality to PSM was investigated. The independence of PSM scales from these traits, presumed divergent from the nine aspects of maturity, would provide additional evidence for the validity of the PSM scales.

1. Changes in PSM scores with increasing grade level.

In order to evaluate grade-level differences in psychosocial maturity, the mean item score and standard deviation were calculated for the nine PSM subscales. Table 5 presents this information and gives t's for the grade 5 - grade 11 mean differences.

TABLE 5 ABOUT HERE

It is clear that item means on each of the nine PSM scales increase with advancing grade level. The mean differences between grade 5 and grade 11 are significant in all cases.[1]

2. Relationships with other traits.

Social Desirability. In an earlier investigation, Greenberger (1972) addressed the questions: do high PSM scores merely reflect an awareness of the socially desirable point of view? are high scores, therefore, contaminated by a tendency to fake good? The conclusion, based on an earlier and less comprehensive PSM inventory (Greenberger et al., 1971) was "no." Inspection of Table 6 suggests the same conclusion.

TABLE 6 ABOUT HERE

While the majority of correlations between PSM scores and Social Desirability scores are statistically significant, they are also relatively small. (Social Desirability scores never account for more than nine per cent of the variance of any PSM subscale.) Furthermore, instances of a

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[1] Since the composition of the 8th grade sample was somewhat different from the grade 5 and 11 samples (e.g., higher father's education, more children in urban schools), the t's for grade 5 - grade 8 differences and for grade 8 - grade 11 differences are not presented in Table 5. These values were calculated, however, and are significant at or beyond the 5% level in 19 of 20 comparisons. The one exception is that scores on Work Orientation do not increase significantly between grades 8 and 11, although they do shift in the expected direction.

PSM subscale correlating more highly with Social Desirability than with any PSM subscale are relatively rare -- 7 out of 27 possible cases -- and all involve one subscale: Communication Skills.[1] Further evidence for the lack of overlap between the concepts of psychosocial maturity and social desirability comes from Table 5, where we observe a consistent increase in PSM means between grades 5 and 11, but a contrasting decrease in Social Desirability means. This replicates an earlier finding (Greenberger, 1972).

Subscales that are positively associated with Social Desirability at all grade levels are Work Orientation, Identity and Communication. In these three subscales, the issue of a favorable self-presentation is vivid, since they focus on personal traits (as the Social Desirability scale does). Because of this similarity, these PSM subscales are most susceptible to "faking good." The magnitude of the correlations, on the other hand, demonstrates that variation in the three maturity-relevant attributes is largely independent of the tendency to give socially desirable responses.

All other subscales tend to be negatively associated with Social Desirability. Subscales that have significantly negative correlations with Social Desirability at all grade levels are Trust and Change. Apparently, individuals who exaggerate their own goodness (i.e. score high on Social Desirability) do not readily admit the shortcomings of other individuals or of the social and political environment.

Other divergent traits. Self-assessed activity level ("I am always on the

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[1] This can be verified by inspection of Tables 6 and 7.

go"), learning ability ("I learn things easily and remember them well") and originality ("I do not have a lot of original ideas" -- scoring reversed) were judged likely to be independent of PSM scores. The correlations between these traits and the nine PSM subscales; between these traits and Social Desirability; and among these traits are presented in Table 7. In order to provide a clearer picture of the relative size of the correlations, the correlations of each PSM subscale with the eight other subscales and the particular divergent trait under consideration were rank-ordered (ignoring the sign of the correlation). The rank of each divergent trait-subscale correlation, with a possible range of 1-9, is presented in Table 8.

TABLES 7 AND 8 ABOUT HERE

Activity level has relatively low correlations with PSM subscales. Of the 27 correlations, only four are significant at the .01 level and one at the .05 level. Twenty-six of the correlations have a rank of 9, emphasizing the lack of any substantial relationship with PSM.

The correlations of learning ability with the PSM subscales are somewhat higher: twelve are significant at the .01 level and one at the .05 level. Five of the twenty-seven correlations, three of which are with the Communication scale, have a rank greater than nine, but the highest rank is only at the midpoint of the range (5). In terms of its general

relationships, this item appears very much like the Social Desirability scale discussed earlier. It correlates positively with Social Desirability, Work, Identity, and Communication, and negatively with Trust. Especially within the school context, it is not surprising that this trait should be somewhat related to these three particular PSM subscales.

Originality produced the highest intercorrelations with the PSM subscales. All correlations are positive and significant at the .01 level, and 17 of the 27 values have a rank greater than 9. The three ranks that lie above the mid-point (ranks of 4) are all due to the association of Originality with the Communication subscale. All correlations with Social Desirability were non-significant.

Validity of the PSM model

The validity of the theoretical model of psychosocial maturity (see Table 1) was examined in three ways: (a) by examination of the intercorrelations among subscales; (b) by means of an hierarchical factor analysis; and (c) by means of a principal components analysis. The question in all three cases is whether the empirical data lend support to the theoretical organization of psychosocial maturity into three general categories -- Individual Adequacy, Interpersonal Adequacy and Social Adequacy -- each subsuming a specific set of three traits.

1. Subscale intercorrelations

The intercorrelations among PSM subscales are presented separately by grade level in Table 9. The integrity of the three grades was maintained in order to eliminate the possibility that the intercorrela-

tions would be spuriously inflated due to their presumed common relationship with grade level.

TABLE 9 ABOUT HERE

The nine PSM subscales are, with one exception, significantly intercorrelated at all grade levels. This finding is consistent with our use of a unifying construct (psychosocial maturity) to describe the nine dimensions assessed. As in the case of subscale homogenieties (see Table 4), interrelations among subscale scores increase with advancing grade level, the largest increase occurring generally between grades 5 and 8.

Given the theoretical organization of PSM into the three general categories mentioned above, each subscale should correlate more highly with the other subscales in the same category than with subscales in other categories. To obtain an overview of the extent to which the obtained data conformed to the hypothesized outcome, the average of the intercorrelations within and among the categories was obtained for each grade level separately, using Fisher's z transformation. The results are presented in Table 10.

TABLE 10 ABOUT HERE

Three observations can be made:

(1) the Individual Adequacy subscales correlate more highly among themselves than with either the Interpersonal Adequacy or Social Adequacy subscales;[1]

(2) the Social Adequacy subscales correlate more highly among themselves than with either the Interpersonal Adequacy subscales or the Individual Adequacy subscales;[2]

(3) for the eighth and eleventh grades, the Interpersonal Adequacy subscales correlate more highly with the Individual Adequacy subscales and the Social Adequacy subscales than they do among themselves. For the fifth grade, the Interpersonal Adequacy subscales correlate more highly with the Individual Adequacy subscales than they do among themselves and as highly with Social Adequacy subscales as they do among themselves.[3]

Thus while the Individual Adequacy and Social Adequacy categories tend to reflect groupings of attitudes as they exist empirically, the Interpersonal Adequacy category -- largely because of the unexpected pattern of relationships observed for the Communication subscale -- does not. The Interpersonal subscales appear to act as a bridge between Individual and Social Adequacy. The coherence of the Individual and Social Adequacy categories and the fractionation of the Interpersonal category are con-

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1 Each subscale has its highest correlation with a subscale in the Individual Adequacy subset.

2 The Tolerance and Change subscales have their two highest correlations with a subscale in the Social Adequacy subset.

3 Each subscale has its lowest intercorrelation within the Interpersonal Adequacy subset. The Communication subscale appears to be, to a large extent, the cause of the lack of coherence within the Interpersonal category. It has its two lowest correlations with scales in its own subset at grades 8 and 11, and its lowest and third-lowest at grade 5.

firmed by the results of both analyses described below.

2. Hierarchichal factor analysis

An hierarchical factor solution was attempted, because the PSM inventory consists of specific subscales which, according to the theory, are not orthogonal but are related in certain ways (Greenberger and Sørensen, 1973). In order to correspond precisely to the theoretical model, the hierarchical solution would have (a) one specific (first order) factor for each of the nine subscales, and (b) the nine first order factors would combine into three higher order factors, each representing one of the three major categories of psychosocial maturity (Individual Adequacy, Interpersonal Adequacy and Social Adequacy) and comprised of those first order factors (subscales) specified by the model.

The items were subjected to analysis by the Wherry-Wherry Hierarchical Factor analysis computer program.[1] This computer program applies a principal factor and minres (Harman and Jones, 1966) combination solution to decompose the zero order correlation matrix. Kaiser's (1958) varimax criterion is imposed in the factor rotation, and the varimax factors are further analyzed to produce an hierarchical factor solution. The minres factorization and varimax rotation methods are described in the sources just cited and by Harman (1967). The mathematical basis for the hierarchical factor solution is presented by Schmid and Leiman (1957) and the particular adaptation used in the computer program is described by Wherry (1959). Since the hierarchical solution is neither readily

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[1] This program is available from the Ohio State University Department of Psychology computer program library.

available nor generally familiar, it is given in Appendix D.

The computer program for the factor analysis required a set of termination criteria. The specifications used were (a) the number of subscales postulated by the theoretical development, and (b) the maximum residual values.[1] For the eleventh grade, the value for the maximum residual is rounded to .04. The residuals are, by definition, altered in the minres process so that they are corrected prior to the hierarchical solution.

The initial communality estimates were the maximum correlations in each row or column. This type of estimate is recommended for large correlation matrices (Harman, 1967, p. 83) and does not require prohibitive computer space. The minres solution provides minres communalities as a by-product so that, like the residuals, the communalities are corrected before the hierarchical process in the factorization.

The increasing magnitude of the internal consistency coefficients with increasing grade level influenced decisions concerning the data that were factor analysed. The eleventh grade data were selected for analysis since these data contain greater within-scale homogeniety than that obtained at the other grade levels. Low homogeniety within the fifth

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[1] The residual is the difference between the actual (original zero order) correlation and the reproduced correlation between two variables. It indicates the amount of unfactored variance, which is thereby defined as "unique" (specific and error) variance. The residual distribution can be assumed similar to the original correlation distribution (via the assumption of additivity of variance components which is central to factor analysis theory) and a maximum value for the residual can be determined in the same manner as the standard error of the correlation coefficient. However, the residual is influenced by the entire set of variables, since it is a sum of products of factor loadings determined on the entire set of variables. Thus, it is reasonable to use the standard error of a correlation coefficient involving more than two variables ($1/\sqrt{N-n-1}$, where N is the number of subjects and n is the number of variables), such as for a part or partial correlation.

grade subscales would preclude the emergence of factors representing the subscales.

Consonant with the subscale internal consistencies, the correlations among the 188 items of the Form B PSM scales were low. This was true even within scales, where high correlations were desirable. (The between-item correlations within a single scale ranged from a low of -.10 to a high of .47.) The magnitude of these correlations has important implications for the factor analysis. Scales which have high inter-item correlations contribute more to the common variance, and have a greater chance of emerging as specific factors, than do subscales which have lower inter-item correlations.

Three consecutive analyses of the eleventh grade were carried out, each allowing a different number of factors to emerge in the first-order analyses. Two criteria were established for interpretation of the factor structures: (a) the proportion of variance on a factor attributable to each subscale and (b) the number of items from each subscale with loadings as high as .18.[1,2] Numerous residuals greater than .04 after the minres process denied over-factorization. The residual distribution and the large sample size indicated that fairly low factor loadings were acceptable.

In the first factor analysis, a maximum of nine first-order factors were allowed, since nine subscales had been identified (i.e. created)

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1 The proportion of variance on a factor related to each subscale was calculated as the sum of the squared factor loadings within a factor and within a subscale, divided by the eigenvalue (total variance) of the factor.

2 Items with loadings lower than .18 were examined in order to ensure that they were consistent with the interpretation of each factor.

on an *a priori* basis. The high degree of correlation among the subscales prevented the emergence of nine first-order factors and yielded a factor structure which could not be interpreted readily. No factor clearly represented any specific subscale, and no subscale was well-represented by any factor. In the second analysis, six first-order factors were specified, since the previous analysis had suggested that fewer dimensions existed than originally anticipated. The resulting factor structure was no improvement over the first. A third analysis was performed in which the number of first-order factors was left virtually unlimited, and the factorization was terminated by the maximum residual criterion.

An overview of the structure obtained in the third analysis is given here, followed by a detailed description. Briefly, the data conform best to the Individual Adequacy and Social Adequacy portions of the theoretical model. The ideal structure is clearest in the factorial representation of the Social Adequacy category, for which both the three specific (first order) subscale factors and the higher order Social Adequacy factor were obtained. For the Individual Adequacy category, there was a higher order factor comprised of the three subscales identified by the model *and* the Communication subscale. There were no specific (first order) factors reflecting the separate Individual Adequacy subscales. In the Interpersonal Adequacy category, the Trust subscale was represented by a specific factor and was related to a higher order factor which weakly portrayed Interpersonal Adequacy. The Roles subscale did not have a recognizable specific factor nor did it have a strong influence on any higher order factor. The Communication subscale combined with Work Orientation in a first order factor, and, as mentioned above, items from the Communication subscale combined with ones from the three Individual Adequacy subscales

in a higher order factor which appears to reflect that subset.

The structure and composition of the factors is presented graphically in Figure 1, where the number of items from each subscale with loadings of .18 or higher on each factor is shown. The structure consists of a general (third order) factor, three second order factors, and five first order factors.[1,2] Appendix E contains the items and their

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FIGURE 1 ABOUT HERE

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loadings on each factor. For each factor, subscales are listed in order of their proportionate contribution to factor variance; and within each subscale, items are listed in order of their factor loadings. Table 11 displays the per cent of variance of each factor contributed by each subscale. In the ensuing discussion of the content of the factors, we will refer only to subscales which contribute the major variance.[3]

TABLE 11 ABOUT HERE

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1 Several other factors emerged but were eliminated because they explained too little of the total variance to be reliable or meaningful.

2 A total of 143 items loads on at least one factor below the third order.

3 After inspection of Table 11, it was decided that subscales contributing at least 15% of the variance of Factors A, B, C, or at least 11% of the variance of Factors 1 - 5, met this criterion.

Highest Order Factor. The highest order factor obtained -- described in Fig. 1 but not in Table 11 or Appendix E -- contains some items from all of the subscales. Of the 188 items, 109 have loadings greater than .18 on this general factor. However, interpretation of this factor must be tempered by the preceding item analysis which had been performed to reduce the original set of items to the final 188. Item selection based upon the internal consistency increased both the homogeniety within subscales and the correlations among subscales. These increased correlations enhance the likelihood of a general factor. Problems in the interpretation (meaningfulness) of the general factor are not crucial, however, because separate PSM subscales or patterns of relations among them are important to the theory rather than a total PSM score.

Factors A and 1. For factor A, the Individual Adequacy and Communication higher order factor, the three Individual Adequacy subscales account for 63% of the variance, while the Communication subscale accounts for an additional 15%. More specifically, 18 of the 20 items on the Identity subscale have loadings of .18 or greater on Factor A.[1] All three aspects of Identity -- self-esteem, internalized values, and clarity of self-concept-- are represented. The 12 Self-reliance items which load on Factor A contain a mixture of the three aspects of this scale; initiative, sense of control, and absence of excessive need for validation. The 12 Work Orientation items which load on Factor A pertain largely to work persistence rather than work quality or attitudes expressing enjoyment of work. The 10 Communication items on Factor A concern a variety of skills (letter-writing, speaking, understanding others) and seem to indicate a degree of

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[1] The number of items on each scale will not be cited specifically hereafter but is given in Table 4. Average scale length is 20.9 items.

confidence in one's competence that logically relates to the items from the three Individual Adequacy subscales.

There is an additional point of similarity among the scales represented on Factor A. The majority of items on these scales are phrased so that the respondent must describe his own beliefs, rather than worded in terms of an ambiguous or third-person referent: e.g.; "I believe in working only as hard as I have to" versus "If everyone is to be really equal, some people will have fewer advantages than they have now." Of the 60 items which have loadings greater than .18 on Factor A, 50 are directly self-descriptive. This predominance of self-descriptive items also occurs on the first-order factor (Factor 1), which represents the Work and Communication subscales. It is possible that the fractionation of the Interpersonal Adequacy category is due in part to the greater stylistic similarity of the Communication scale to scales in the Individual Adequacy subset than to those in the Interpersonal Adequacy subset.[1] It is also plausible, however, that the underlying theme of personal competence is what brings Communication into the Individual Adequacy domain.

The major variance of Factor 1 is contributed by Work Orientation, 25%, and Communication, 24%. The 10 Work items which have substantial loadings on this factor indicate work persistence, as did those loading on Factor A. Seven Work items are common to Factors A and 1. The 12 Communication items which load on this factor are probably related to the Work items through the common theme of competence; some of the Work items, which are not found on Factor A, express pleasure in work and a concern for quality. Tolerance items contribute an additional 13% of the variance

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[1] The percentage of items that refer directly to the self is: Self-reliance, 68%; Work, 76%; Identity, 95%; Communication, 100%; Roles, 11%; Trust, 14%; Social Commitment, 52%; Tolerance, 54%; Change, 10%; (and Social Desirability, 100%).

on Factor 1. Although this percentage is small, five of the six Tolerance items also have high loadings on other factors: B, C, 3, 4 and 5. These items express attitudes toward other races, and the strength of their relationships to other variables may reflect special characteristics of the sample: in particular, its geographic location and the salience of racial issues.[1] This recurrence of the Tolerance items will be discussed more thoroughly in relation to the Social Adequacy factors. Social Commitment items also load on Factor 1 and account for 12% of its variance. They deal mainly with contributing to the social good (at some personal cost); two of the items deal explicitly with working for the good of others.

Factors B and 2. Factors B and 2 are the factors which are most representative of the Interpersonal Adequacy category. As discussed in the overview, the structure is not ideal for the category as a whole (Factor B) or for its component subscales (Factor 2). On Factor B, the three Communication items have negative loadings, which may result from a style of wording, described above, which contrasts with the wording of most of the remaining items on this factor. Communication contributes 15% of the variance on Factor B. The Roles subscale appeared more strongly on Factor B than on any other factor, accounting for 15% of the factor variance, but contributed only three items with sizable loadings. The most substantial components of Factor B derive from the Trust and Social Commitment subscales. The six Trust items which have high loadings concern the absence of naive over-trust. The six Social Commitment items involve a willingness to contribute to social causes -- again at some personal cost.

Factor 2 contains five of the six Trust items which also load on

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[1] The appearance of the Tolerance items on several factors tends to cloud the interpretation of factors.

Factor B. These and the three Trust items specific to Factor 2 all pertain to the absence of naive over-trust. The Trust subscale accounts for 30% of the Factor 2 variance. The three Communication items on Factor 2 are, again, expressive of self-confidence. The two Self-reliance items reflect a capacity to take the initiative in social situations. The presence of only one Roles item on Factor 2 indicates that Factor 2 is clearly less representative of the overall Interpersonal Adequacy category than is Factor B.

Factors C, 3, 4, and 5. These factors are most similar to the ideal structure for Social Adequacy. The higher order factor, Factor C, combines items from each of the three subscales in the Social Adequacy category. These three subscales constitute 60% of the variance of Factor C, distributed as follows: Tolerance, 21%; Change, 20%; and Social Commitment, 19%. The Tolerance items which load appreciably on Factor C include six concerned with racial attitudes and three with other topics. All three Change items reflect attitudes toward changing sex roles. The Social Commitment items in Factor C refer to a variety of issues. An additional 17% of the factor variance comes from the Communication scale. The six items also have a variety of content but center around interpersonal ease.

The first order factors tend to represent each component of the Social Adequacy category. Factor 3 is the first order factor which represents Social Commitment. The Social Commitment subscale, with 16 items loading appreciably, accounts for 36% of the factor variance. All aspects of the construct are covered: feelings of community with others, long-term social goals, and willingness to relinquish personal in favor of social goals. (No apparent factorial discrimination among these aspects of Social Commitment emerged on either Factor C or Factor 3.) The few Tolerance and Trust items (the latter, with negative loadings) concern feelings of com-

munity with others.

Factor 4 is the first order factor which best describes Tolerance. The Tolerance subscale, with eight items loading substantially on this factor, accounts for 43% of the Factor 4 variance. All six items dealing with racial attitudes appear here; the remaining two concern attidues toward religion and poverty.

Factor 5 is the strongest factor specific to the Change subscale. These items include attitudes toward changing sex roles and knowledge about the consequences (costs and benefits) of social change. The few Communication and Trust items have a variety of content. A segment of Factor 5 also represents the Tolerance subscale (including some of the racial attitude items). Since certain topics are confounded with the Tolerance and Change subscales (i.e., racial attitudes are assessed on the Tolerance subscale only, and attitudes toward sex roles are assessed only on the Change subscale), it is difficult to determine whether separate dimensions of functioning, Tolerance and Openness to Change, are present in this factor; or whether respondents are simply expressing a common (accepting) orientation to a variety of social topics.

Summary. The hierarchical factor analysis of 188 items of the PSM subscales (Form B) provides some empirical support for the theoretical model of psychosocial maturity. This support is strongest for the concept of Social Adequacy, constituted by subscales for Social Commitment, Tolerance, and Openness to Change. The concept of Individual Adequacy also receives substantiation, but empirically includes an additional scale. Its composition reflects Work Orientation, Self-reliance, and Identity (which were anticipated in the theoretical statement of the model) and Communication Skills.

Principal Components Analysis. A principal components analysis was also carried out to determine whether the empirical data would yield a structure similar to that predicted by the theory. Subscale scores, rather than items, were analyzed, since the former are generally more stable (i.e., have higher test-retest reliability) than the latter. A three-factor solution was obtained and orthogonally rotated by the Varimax procedure.[1] Table 12 presents the factor loadings derived from this analysis.

TABLE 12 ABOUT HERE

The first factor is most clearly represented by the Social Adequacy scales: Tolerance, Openness to Change, and Social Commitment. These subscales, in the same order, have factor loadings of .71, .68, and .59. The second factor is dominated by the Communication subscale and the three Individual Adequacy subscales: Identity, Work Orientation, and Self-reliance. Factor loadings, respectively, are .80, .69, .56, and .49. The third factor is best represented by two Interpersonal and two Individual Adequacy subscales: Knowledge of Major Roles, Enlightened Trust, Self-reliance and Identity. These subscales have factor loadings, in the same order, of .71, .61, .61, and .53.

The structure predicted by the theoretical model is replicated empirically in this analysis for the Social Adequacy category (first factor). The structure predicted for the Individual Adequacy category is also confirmed empirically; however, it includes not only the three subscales specified by the model but also one subscale predicted to belong to the

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[1] The Scree test was employed in determining the number of factors (see Cattell, 1966).

Interpersonal Adequacy subset (second factor). The Interpersonal Adequacy category does not materialize as predicted, but the third factor appears interpretable as reflecting both individual and interpersonal adequacy. It describes a person who has confidence and self-esteem (Self-reliance and Identity subscales), and also knows his way around in the world (Roles and Trust subscales).

The results of the principal components analysis are generally consistent with the hierarchical analysis. The first factor strongly resembles Factor C, and the second factor clearly resembles Factor A. The only noteworthy point of difference lies in the third factor, which has a somewhat different composition than Factor B. Thus, the factor that represents a portion of the Interpersonal Adequacy subscales has links to different subscales in the principal components and hierarchical analyses. The twice-established coherence of the Individual and Social Adequacy subscales has useful implications for future research. The formation of summary scores for each of these subsets -- based on the sum of scores for the three subscales pertinent to each, as specified in Table 1 -- would provide an economy with respect to research variables, without loss of meaningfulness. The arguments given previously suggest that for the present, Communication should not be included in the summary scale for Individual Adequacy.

SUMMARY AND DISCUSSION

The educational community has expressed growing interest in the assessment of children's personal and social development. The construction and subsequent improvement of the nine subscales comprising the Psychosocial Maturity Inventory is relevant to this objective. A strength of the Inventory is its derivation from a model that integrates desired

end-products of socialization with goals of human development.

The major purpose of this study was the construction of scales of manageable length and reasonable internal consistency, suitable for administration from grades five through eleven. This purpose has been accomplished.[1] Marginal degrees of homogeniety for several subscales at grade 5, however, suggest some caution in the use of the Inventory at this level. (The Individual Adequacy subscales are the most acceptable at this grade level.)

Modest evidence for the validity of the nine subscales also has been presented. The finding that subscale scores increase significantly between grades 5 and 11 is important, since the construct of psychosocial maturity implies growth toward the "ideal" end-product over time, and the period between grade 5 and grade 11 is one that figures prominently in theories of socialization and development. (Parenthetically, the fact that children's scores on the nine dimensions of maturity change over the school years indicates that the school could hope to influence development toward maturity.) Low correlations of the PSM subscales with a measure of social desirability indicate that "faking good" is not a significant problem in the interpretation of psychosocial maturity scores. The finding that the

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1 Since the development of the Form B subscales, short forms, with about 10 items per subscale, have been created. These scales, known as Form C of the Psychosocial Maturity Inventory, have different content at each grade level in order to maximize the internal consistency at each grade level (instead of maximizing the mean internal consistency across all grade levels).

The resulting KR 8 estimates of internal consistency for Form C vary between ±.04 from the estimates for the Form B subscales. The properties of the short scales generally are very similar to those of Form B subscales, with which their average correlation is .91, .89, and .86 at grades 5, 8, and 11, respectively. Form C is a very acceptable substitute for Form B when administration time is limited.

Researchers interested in obtaining copies of either Form B or Form C should address requests to the first author, stating the purpose to which the instrument will be put.

PSM subscales tend to correlate more highly among each other than with self-ratings of three divergent traits supports the view that there is an underlying conceptual unity among the PSM subscales, and suggests that the scales do not assess certain attributes that are irrelevant to the concepts they purport to measure. Further validity studies are now in progress.

The least satisfactory subscale of the PSM Inventory is Communication Skills. This subscale appears to be related more to feelings of general confidence and competence than to actual skill in communicating with others. This conclusion is based on the consistently strong representation of the Communication subscale on factors that include the Self-reliance, Identity and Work subscales, and is supported by a review of the content of the Communication items (Appendix E).[1,2] The remaining Interpersonal subscales, Roles and Trust, also contain ambiguities. While their relationship to other subscales tends to be somewhat weaker than their relationship to each other (Tables 9 and 10), both the hierarchical and principal components analyses indicate that they tend to be represented, along with other subscales, on the same factors (for example, Factor B of the hierarchical analysis -- see Table 11; and Factor 2 of the principal components analysis -- see Table 12).[3]

A theoretical structure or model of psychosocial maturity was described in Table 1. The validity of the model, which is relevant to

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1 Doubts about whether the Communication subscale is measuring skill in this area are also raised by data from another study. Standardized verbal achievement test scores have significant but low correlations with the Communication subscale; and do not correlate as highly with Communication as with several other PSM subscales.

2 A study is planned in which the content of the Communication items will be altered slightly. Competency phrases such as "I find it easy to..." will be replaced with phrases that refer to interest in communicating, such as "I like to..."

3 A study is now underway to evaluate a new form of the Trust subscale.

the construct validity of the PSM subscales, was put to its first empirical test in this study. The best fit between the model and the data were obtained in relation to Individual Adequacy and Social Adequacy. The integrity of these categories, as defined in Table 1, is supported by every form of analysis that was conducted: intercorrelations among subscales, hierarchical analysis, and principal components analysis. The only caveat concerns the finding that Communication empirically "belongs" in the Individual Adequacy subset. This and other rearrangements in the model may be desirable in the long run, but should not be undertaken prior to subscale revisions and the accumulation of further empirical evidence based on other samples of individuals.

REFERENCES

Cattell, R. B. The Scree test for the number of factors. Multivariate Behavioral Research, 1966, 1, 245-276.

Crowne, D. & Marlowe, D. The approval motive: studies in evaluative dependence. New York: Wiley, 1964.

Erikson, E. Childhood and society. New York: W. W. Norton, 1950.

Greenberger, E. Psychosocial maturity or social desirability? Baltimore: Report No. 131, Center for Social Organization of Schools, The Johns Hopkins University, 1972.

Greenberger, E., Campell, P., Sørensen, Aa. B., & O'Connor, J. Toward the measurement of psychosocial maturity. Baltimore: Report No. 110, Center for Social Organization of Schools, The Johns Hopkins University, 1971.

Greenberger, E. & Sørensen, Aa. B. Educating children for adulthood: a concept of psychosocial maturity. Baltimore: Report No. 159, Center for Social Organization of Schools, The Johns Hopkins University, 1973.

Harman, H. H. Modern factor analysis. Second Ed. Chicago: The University of Chicago Press, 1967.

Harman, H. H. & Jones, W. H. Factor analysis by minimizing residuals (minres). Psychometrika, 1966, 31, No. 3, 351 - 368.

Inkeles, A. Society, social structure and child socialization. In J. A. Clausen (Ed.), Socialization and society. Boston: Little, Brown, 1968. Ch. 3.

Josselson, R., Greenberger, E., & McConochie, D. On the validity of the Psychosocial Maturity scales: relationship to teacher ratings. Baltimore; Report No. 171, Center for Social Organization of Schools, The Johns Hopkins University, 1974.

Kaiser, H. F. The varimax criterion for analytic rotation in factor analysis. Psychometrika, 1958, 23, No. 3, 187- 200.

Kuder, G. F. & Richardson, M. W. The theory of the estimation of test reliability. Psychometrika, 1937, 2, 151 - 160.

Schmid, J. & Leiman, J. M. The development of hierarchical factor solutions. Psychometrika, 1957, 22, No. 1, 53 - 61.

Wherry, R. J. Hierarchical factor solutions without rotation. Psychometrika, 1959, 24, No. 1, 45 - 50.

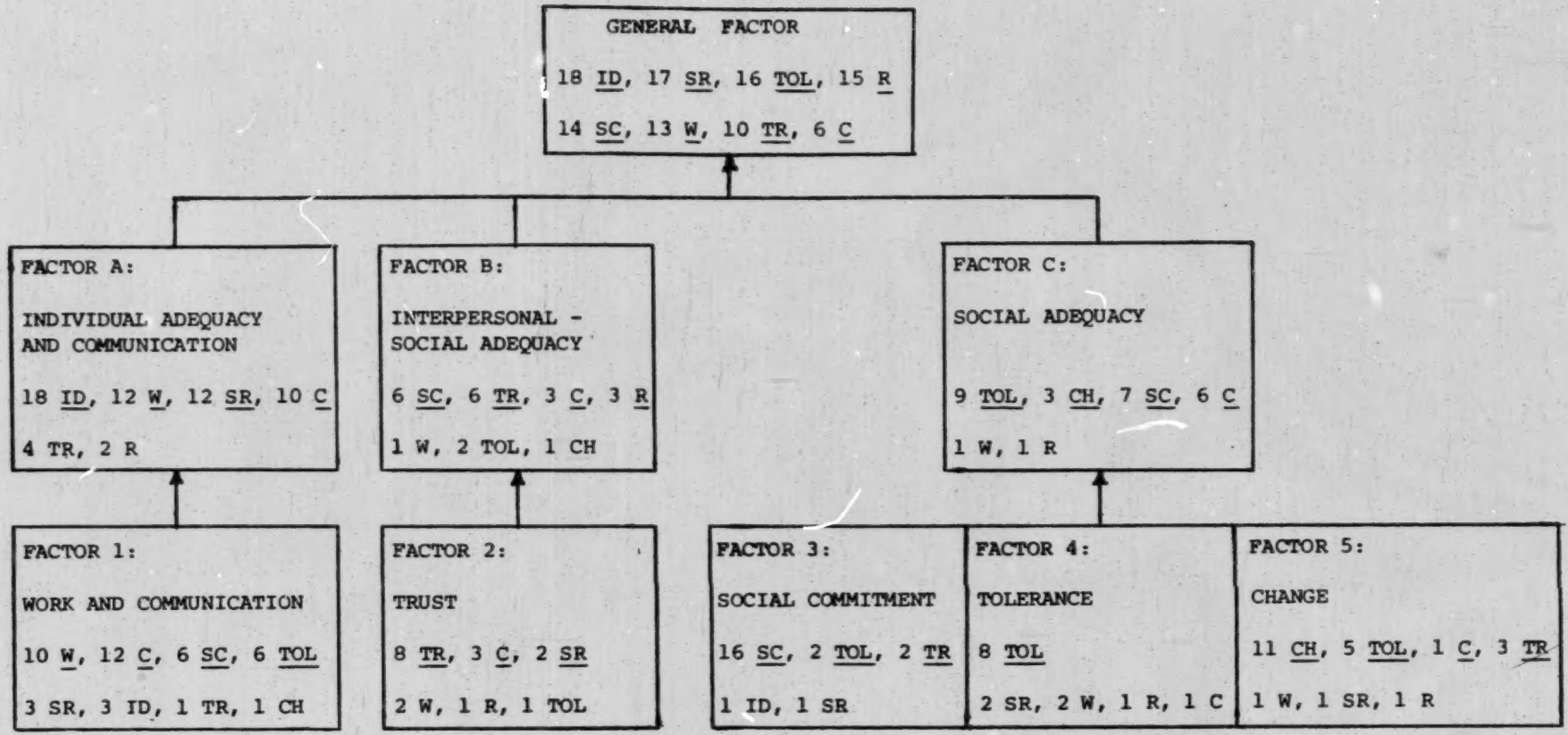
GENERAL FACTOR
18 ID, 17 SR, 16 TOL, 15 R
14 SC, 13 W, 10 TR, 6 C
FACTOR A:
INDIVIDUAL ADEQUACY AND COMMUNICATION
18 ID, 12 W, 12 SR, 10 C
4 TR, 2 R
FACTOR B:
INTERPERSONAL - SOCIAL ADEQUACY
6 SC, 6 TR, 3 C, 3 R
1 W, 2 TOL, 1 CH
FACTOR C:
SOCIAL ADEQUACY
9 TOL, 3 CH, 7 SC, 6 C
1 W, 1 R
FACTOR 1:
WORK AND COMMUNICATION
10 W, 12 C, 6 SC, 6 TOL
3 SR, 3 ID, 1 TR, 1 CH
FACTOR 2:
TRUST
8 TR, 3 C, 2 SR
2 W, 1 R, 1 TOL
FACTOR 3:
SOCIAL COMMITMENT
16 SC, 2 TOL, 2 TR
1 ID, 1 SR
FACTOR 4:
TOLERANCE
8 TOL
2 SR, 2 W, 1 R, 1 C
FACTOR 5:
CHANGE
11 CH, 5 TOL, 1 C, 3 TR
1 W, 1 SR, 1 R

Fig. 1. Representation of Items on Factors

(For items with loadings $\leq$ .18)

Notes:

Subscales are listed in order of their relative contribution to factor variance.

Underlined Subscales in Factors A, B, and C contribute 15% or more to factor variance, while underlined subscales in Factors 1 - 5 contribute 11% or more. Subscales not underlined contribute lesser amounts to the factor variance.

Table 1

Detailed Model of Psychosocial Maturity

Individual Adequacy

Self-Reliance

absence of excessive need for social validation
sense of control
initiative

Work-Orientation

general work skills
standards of competence
pleasure in work

Identity

clarity of self-concept
consideration of life goals
• self-esteem
internalized values

Interpersonal Adequacy

Communication Skills

ability to encode messages
ability to decode messages
empathy

Enlightened Trust

rational dependence
rejection of simplistic views of human nature
awareness of constraints on trustworthiness

Knowledge of Major Roles

role-appropriate behavior
management of role conflict

Social Adequacy

Social Commitment

feelings of community
willingness to modify personal goals in favor of social goals
readiness to form alliances
interest in long-term social goals

Openness to Socio-political Change

general openness to change
recognition of costs of status quo
recognition of costs of change

Tolerance of Individual and Cultural Differences

willingness to interact with people who differ from the norm
sensitivity to the rights of people who differ from the norm
awareness of costs and benefits of tolerance

Table 2

Sample Characteristics

	Race[a]			Sex		Father's Education[b,c]	
Grade Level	% Black	% White	Other	% Male	% Female	Mean	S.D.
Grade 5	36.0	56.2	7.8	47.2	52.8	3.8	1.9
Grade 8	32.1	66.1	1.8	48.0	52.0	4.2	1.9
Grade 11	40.3	58.5	1.1	44.6	55.4	3.8	2.0

[a] Figures are for respondents who supplied this information. Response rates for grades 5, 8, and 11, respectively, were 90.4%, 93.5% and 88.8%.

[b] Figures are for respondents who supplied this information. Response rates for grades 5, 8, and 11, respectively, were 59%, 75.2% and 85.5%.

[c] Parental education was indicated by respondents according to the following scheme. (A "do not know" category was also provided, but is ignored for purposes of computing means.)

1 = some grade school
2 = finished grade school
3 = some high school
4 = finished high school
5 = technical or grade school after high school
6 = some college
7 = finished college
8 = graduate or professional school

Table 3

Sample Items from Psychosocial Maturity Scales[a]

Subscale	Item
Self-Reliance (SR)	You are probably wrong if your friends are against what you decide. (-)
	Someone often has to tell me what to do. (-)
Work Orientation (W)	I believe in working only as hard as I have to. (-)
	If something more interesting comes along, I will usually stop anything I'm doing. (-)
Identity (I)	I change the way I feel and act so often that I sometimes wonder who the "real" me is. (-)
	I have to struggle to keep my behavior what it ought to be. (-)
Communication Skills (C)	People find it hard to figure me out from what I say.(-)
	In a discussion, I often find it hard to understand what people are trying to say. (-)
Roles (R)	Teachers should not expect as much homework from athletes who have to spend a lot of time at practice. (-)
	If you're upset with someone at home, you can't be expected to be nice to people at school. (-)
Enlightened Trust (TR)	If people are picked in a fair way to be on a trial jury, they are sure to reach a fair decision. (-)
	I find it hard to ask even my good friends for help. (-)
Social Commitment (SC)	It's not really my problem if my neighbors are in trouble and need help. (-)
	Why work for something others will enjoy if you won't be alive to enjoy it too? (-)
Tolerance (TOL)	If I had a choice, I would prefer a blood transfusion from a person of the same skin color as mine. (-)
	I feel a little sorry for people whose ideas about God are different from mine. (-)
Openness To Change (CH)	If everyone is to be really equal, some people will have fewer advantages than they have now. (+)
	Women should not be elected to top government positions. (-)

[a] A minus sign following an item indicates that the "mature" response lies in the direction of disagreement; a plus sign indicates that the "mature" response lies in the direction of agreement with the item.

Table 4

KR 8 Estimates of Homogeniety

For Form B PSM Subscales

Subscale	Number of Items	Grade 5	Grade 8	Grade 11	Mean
SR	19	.73	.78	.82	.77
W	20	.74	.81	.81	.79
ID	20	.78	.83	.85	.82
C	21	.62	.75	.80	.72
R	19	.73	.78	.76	.76
TR	21	.66	.71	.75	.70
SC	23	.72	.83	.82	.79
TOL	24	.62	.76	.78	.72
CH	21	.58	.70	.72	.67

Table 5

Mean Item Scores for each PSM Subscale by Grade Level

Subscale	Grade 5		Grade 8		Grade 11		
	Mean Item Score	S.D.	Mean Item Score	S.D.	Mean Item Score	S.D.	t*
SR	2.37	.41	2.66	.42	2.75	.44	16.38
W	2.53	.42	2.61	.45	2.66	.44	5.59
ID	2.50	.45	2.69	.47	2.77	.49	10.60
C	2.55	.33	2.65	.36	2.70	.40	7.53
R	2.47	.44	2.70	.45	2.82	.42	15.14
TR	2.26	.35	2.43	.37	2.51	.39	12.22
SC	2.64	.40	2.81	.46	2.91	.42	12.15
TOL	2.64	.32	2.77	.38	2.88	.38	12.49
CH	2.65	.33	2.84	.37	2.92	.38	14.04
[SD	2.37	.39	2.27	.39	2.26	.42	5.00]

* Grade 11 - grade 5; $p < .005$ for all values.

Table 6

Correlation of PSM Subscales with Social Desirability[a]

	Grade 5	Grade 8	Grade 11
SR	-.05[a]	-.03[a]	-.10
W	.21	.26	.25
ID	.08	.11	.13
C	.22	.21	.16
R	-.06[a]	-.08	-.14
TR	-.12	-.15	-.30
SC	-.05[a]	-.01[a]	-.07[a]
TOL	-.05[a]	-.03[a]	-.07[a]
CH	-.14	-.19	-.25

[a] Correlations marked with a superscript a are not significant at the 5% level. All other correlations reach at least the 5% level of signigicance.

Table 7

Correlations of Three Divergent Traits with PSM, Social Desirability, and with Each Other

	Activity Grade Level			Learning Grade Level			Originality Grade Level		
	5	8	11	5	8	11	5	8	11
W	.00	.05	.02	.01	.21**	.16**	.22**	.35**	.35**
SR	-.07	.04	.07	-.22**	.09**	.06	.28**	.39**	.44**
ID	-.02	.12**	.04	-.06	.18**	.11**	.33**	.39**	.44**
C	.04	.15**	.13**	.15**	.30**	.34**	.25**	.39**	.40**
R	-.07	-.02	.05	-.18**	-.04	-.05	.16**	.27**	.29**
TR	-.08*	.01	.06	-.25**	-.06	-.08*	.22**	.26**	.37**
SC	.01	.01	.02	-.01	.02	.00	.15**	.24**	.24**
TDL	-.02	-.02	.04	-.04	.04	.05	.08**	.23**	.27**
CH	.07	.01	.14**	.03	.00	.10**	.12**	.18**	.23**
SD	.04	.01	-.07	.21**	.16**	.14**	.00	.05	-.04
ACT	—	—	—	.18**	.17**	.08*	.02	.04	.09*
LEARN				—	—	—	-.04	.16**	.16**
ORIG.							—	—	—

* $p < .05$

** $p < .01$

Table 8

Rank Order of Correlation of Each PSM Scale with Other PSM Scales Plus a Divergent Trait

	Activity			Learning			Originality		
	Grade Level			Grade Level			Grade Level		
	5	8	11	5	8	11	5	8	11
W	9	9	9	9	9	9	9	8	8
SR	9	9	9	9	9	9	7	9	8
ID	9	9	9	9	9	9	7	7	7
C	9	9	9	6	4	5	4	4	4
R	9	9	9	8	9	9	8	8	8
TR	8	9	9	6	9	9	6	8	7
SC	9	9	9	9	9	9	9	9	9
TOL	9	9	9	9	9	9	9	9	9
CH	9	9	9	9	9	9	8	9	9

Table 9

Intercorrelations Among PSM Subscales at Three Grade Levels[a, b]

	SR	W	ID	C	R	TR	SC	TOL	CH
SR		.51	.64	.26	.54	.60	.42	.34	.24
		.62	.71	.50	.64	.54	.56	.50	.45
		.59	.71	.52	.63	.58	.51	.54	.44
W			.61	.32	.55	.35	.50	.39	.30
			.66	.53	.57	.35	.57	.43	.34
			.67	.53	.52	.36	.51	.38	.32
ID				.42	.49	.44	.40	.30	.27
				.61	.52	.44	.45	.39	.36
				.61	.54	.46	.46	.43	.33
C					.11	.06[b]	.17	.09	.17
					.23	.17	.30	.30	.26
					.25	.20	.33	.38	.33
R						.51	.46	.38	.27
						.54	.64	.50	.45
						.54	.61	.50	.45
TR							.28	.15	.11
							.37	.31	.27
							.35	.36	.31
SC								.53	.41
								.64	.54
								.58	.51
TOL									.44
									.57
									.58
CH									

[a] The first line of figures in each cell is for grade 5 (n = 729); the second line of figures, grade 8 (n = 925); the third line of figures, grade 11 (n = 639).

[b] All correlations are significant at or beyond the 5% level unless marked by superscript "b".

Table 10

Mean Subscale Intercorrelations Within Each Category

Category	Grade	Individual Adequacy	Interpersonal Adequacy	Social Adequacy
Individual Adequacy	5	.59	.45	.35
	8	.66	.53	.45
	11	.66	.53	.44
Interpersonal Adequacy	5		.24	.24
	8		.33	.39
	11		.34	.41
Social Adequacy	5			.46
	8			.58
	11			.56

Table 11

Percent of Factor Variance Contributed by Subscale

	Factors							
	Higher Order Factors			First Order Factors				
Subscales	A	B	C	1	2	3	4	5
SR	16	7	5	5	11	8	8	6
W	17	6	7	25	9	10	8	9
I	30	7	3	8	8	5	5	3
C	15	15	17	24	14	4	7	13
R	5	15	4	3	8	5	7	5
TR	6	16	4	5	30	14	6	11
SC	5	16	19	12	7	36	9	9
TOL	3	13	21	13	9	14	43	19
CH	2	5	20	5	4	5	7	26

Table 12

Varimax Rotation of Factor Matrix for Nine Variables and Three Principal Components

Subscale	Factor 1*	Factor 2**	Factor 3***
SR	.341	.490	.605
W	.233	.562	.437
I	.161	.692	.527
C	.251	.802	.042
R	.425	.145	.712
TR	.217	.153	.610
SC	.592	.227	.395
TOL	.706	.242	.259
CH	.682	.171	.194

* Social Adequacy

** Individual Adequacy

*** Interpersonal and Individual Adequacy

APPENDIX A

The Problem of Missing Data

Ss may fail to respond to a particular item in the attitude inventory for one of the following reasons: (1) item characteristics, such as ease of interpretation; (2) time pressure, which may cause S to omit a string of items at the end of the scale, or amplify the effects of (1); and (3) random factors, which may be considered to be independent of either item characteristics or time pressure.[1] Each reason for omission is associated with a particular pattern or frequency of omissions. Omissions due to time pressure should increase as a monotonic function of the position of the item in the scale (i.e. its administration number). Random omissions should occur with approximately equal frequency for each item. Omissions remaining after these influences are "removed" should be those due to the individual item characteristics. Unless omissions are randomly distributed across both items and Ss, the inclusion of a large number of omissions in the data set would produce spurious dependencies among the items.

Examination of the data suggested that the omissions were largely, if not completely, the results of time pressure and random factors. The percentage of omissions, both total and by grade level and PSM subscale, is presented in Table A, which follows. The percentage of omissions as a function of the mean administration number of all items of each subscale is presented in this Table. The distribution of omissions is

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[1] "Attitude inventory" refers to the 349 PSM items and 18 social desirability items which constitute the dependent variables of this study.

clearly non-random. The increase in the proportion of omissions with increasing administration number (and thus with a decrease in the amount of time remaining for S to complete the scale) provides crude but substantial evidence for operation of a time-pressure factor.

The skewness of the distribution of omissions made it possible to reduce the severity of the missing data problem by eliminating all Ss who had more than 12 omissions.[1] The use of this criterion eliminated 89.44% of the item-omissions at a cost of 10.79% of the Ss.

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[1] Computer programs available for the data analysis either scored each omission as a zero and included it in the data set, or required previous elimination of the S.

Table A

Omissions as a Function of Mean Item Location in Test
(by Grade and Subscale)

	No. of Items in Scale	Mean Item Location in Test	Per Cent Omissions by Grade Level			
			5	8	11	Total
SC	35	125.97	2.77	1.98	3.96	2.90
[SD	18	151.06	3.03	2.02	4.15	3.07]
R	33	156.15	2.77	1.98	4.09	2.95
W	33	162.55	2.97	2.16	4.34	3.16
I	41	192.02	3.57	2.57	5.39	3.84
C	41	194.88	3.87	2.82	6.14	4.28
TR	40	198.83	3.77	2.66	5.77	4.07
TOL	44	205.68	3.99	2.70	5.90	4.20
CH	41	214.00	3.98	2.97	6.30	4.42
SR	41	220.27	4.16	3.06	6.53	4.58
TOTAL	367	___	3.53	2.53	5.36	3.81

[a] Scales are ordered with respect to increasing mean item location in test.

APPENDIX B

Content of the Final PSM Scales

The content of the final scales can be described most usefully by reference to Table 1. In Table 1, it is suggested that conceptually each of the nine attributes of psychosocial maturity has several components.[1] While items sometimes focus exclusively on one component, they often reflect several aspects of the attribute. Consequently, we will describe the content of the final scales in somewhat general terms.

Over half of the Self-reliance subscale consists of about equal numbers of items reflecting absence of excessive need for social validation and sense of control. About one-fifth of the items reflect initiative. The Work orientation subscale concerns mainly work skills, such as persistence and resistance to distraction. Somewhat less than one-third of the items concern pleasure in work. The internal consistency analysis eliminated many items that dealt with standards of competence. Only two remain in the scale. The majority of the Identity subscale items deal with self-esteem and clarity of the self-concept (with about equal numbers of each). A few items concern internalized values. Many of these items were eliminated in the internal consistency analysis.

The Communication subscale consists chiefly of items that assess encoding, rather than decoding, ability. Empathy enters directly into about one-quarter of the items, but many empathy items were cast out during internal consistency analysis. All the Roles items concern appro-

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[1] For example, Self-reliance consists of (a) absence of excessive need for social validation; (b) sense of control; and (c) initiative.

priate behavior for a given type of role-player; about half also deal directly or indirectly with management of role conflict. In the Trust subscale, over half the items assess the dimension marked by enlightened trust at one end and naive trust at the other. Fewer than half deal with the dimension marked by rational dependence at one end and irrational under-trust at the opposite extreme.

The Social Commitment subscale deals expressly with feelings of community in about half the items; however, this sentiment is indirectly expressed by all items. Again, half the items reflect a willingness to put aside personal goals in order to support social goals. The Tolerance subscale deals chiefly with willingness to interact with people who differ from oneself. Sensitivity to the rights of minorities and awareness of the costs and benefits of tolerance are each tapped in about one-eighth of the items. The Change scale consists mainly of items which, through a variety of topics, tap openness to change. About one-quarter of the items assess awareness of the costs and benefits of change.

APPENDIX C

KR 8 for Original (Form A) and Final (Form B) PSM Subscales

Scale		Number of Items	Grade 5	Grade 8	Grade 11	Mean
Self-Reliance	Orig.	41	.51	.72	.78	.65
	Final	19	.73	.78	.82	.77
Work Orientation	Orig.	33	.68	.81	.82	.77
	Final	20	.74	.81	.81	.79
Identity	Orig.	41	.67	.80	.81	.76
	Final	20	.78	.83	.85	.82
Communication	Orig.	41	.48	.65	.71	.62
	Final	21	.62	.75	.80	.72
Roles	Orig.	33	.48	.58	.60	.55
	Final	19	.73	.78	.76	.76
Enlightened Trust	Orig.	40	.40	.59	.68	.56
	Final	21	.66	.71	.75	.70
Social Commitment	Orig.	35	.68	.82	.81	.77
	Final	23	.72	.83	.82	.79
Tolerance	Orig.	44	.43	.65	.73	.60
	Final	24	.62	.76	.78	.72
Change	Orig.	41	.47	.61	.65	.57
	Final	21	.58	.70	.72	.67
[Social Desirability	Orig.	18	.60	.69	.73	.67]
	Final	15	.62	.69	.75	.69]

APPENDIX D

The Mathematical Basis for the Hierarchical Factor Solution

A correlation matrix, R, may be factored into:

(1) $$R = F_1 F_1' + U^2 \quad ,$$

where

F_1 = the orthogonal commom factor coefficients, and

U_1 = the unique factor coefficients in the diagonal and zeros elsewhere. The subscript signifies that F_1 and U_1 are first order coefficients, derived from the zero order correlations, that would result from a typical (non-hierarchical) factor analysis. F_1 represents the product of the oblique common factor coefficients (P_1) and the direction cosines of the oblique factors (H_1):

(2) $$F_1 = P_1 H_1 \quad .$$

Then equation 1 can be written:

(3) $$R = P_1 H_1 H_1' P_1' + U_1^2 \quad .$$

The matrix of correlations among the first order common factors, designated R_1, is defined by:

(4) $$R_1 = H_1 H_1' \quad ,$$

so that equation 3 reduces to

(5) $$R = P_1 R_1 P_1' + U_1^2 \quad .$$

R_1 may be factored as was indicated for R in equations 1 through 4 to obtain the second order factors:

(6) $$R_1 = F_2 F_2' + U_2^2$$
$$= P_2 H_2 H_2' P_2' + U_2^2$$

The second order factor structure, F_2, portrays the factors in the correlation matrix formed from the first order factors. The process is repeated at successively higher orders until a single factor is obtained, in which case R_1 is a scalar.

APPENDIX E

Factor A: Individual Adequacy and Communication

Subscale	Item	Loading
W	I find it hard to stick to anything that takes a long time to do.	.3015
W	I believe in working only as hard as I have to.	.2958
W	I leave my homework unfinished if there are a lot of good TV shows on that evening.	.2903
W	I often forget work I am supposed to do.	.2902
W	I often get behind in my work.	.2752
W	I often don't finish work I start.	.2618
W	I tend to go from one thing to another before finishing any one of them.	.2580
W	I get upset if I am not immediately successful in learning something new.	.2573
W	I often don't get my most important work done because I've spent too much time on other work.	.2487
W	I hate to admit it, but I give up on my work when things go wrong.	.2429
W	It's more important for a job to pay well than for a job to be interesting.	.2401
W	No one should expect you to do work that you don't like.	.1876
SR	The future is so uncertain, you can't really make any plans.	.3028
SR	I feel very uncomfortable if I disagree with what my friends think.	.2967
SR	Someone often has to tell me what to do.	.2826
SR	Others seem more in control of their lives than I do.	.2786
SR	Luck decides most things that happen to me.	.2735

Subscale	Item	Loading
SR	When things go well for me, it is usually not because of anything I myself actually did.	.2613
SR	I keep my ideas to myself in class unless I am sure I'm right.	.2610
SR	In a group I prefer to let other people make the decisions.	.2378
SR	I usually let others take the lead.	.2362
SR	The main reason I'm not more successful is that I have bad luck.	.2302
SR	I don't like to tell my ideas about God when I know others will disagree with me.	.1884
SR	I don't know whether I like a new outfit until I find out what my friends think.	.1820
ID	I change the way I feel and act so often that I sometimes wonder who the "real" me is.	.4180
ID	I'm acting like something I'm not a lot of the time.	.3886
ID	I never seem to feel the same about myself from one week to the next.	.3591
ID	I never know what I'm going to do next.	.3553
ID	Most people are better liked than I am.	.3492
ID	I seem to do things I feel sorry for more often then other people do.	.3490
ID	I often wish I were someone else.	.3425
ID	Nobody knows what I'm really like.	.3358
ID	My life is pretty empty.	.3326
ID	I don't treat other people the way I feel I should.	.3027
ID	I have to struggle to keep my behavior what it ought to be.	.2942
ID	I can't really say what my interests are.	.2792
ID	I am not really accepted and liked.	.2791
ID	I can't seem to keep people as friends for very long.	.2557

Subscale	Item	Loading
ID	I'm the sort of person who can't do anything really well.	.2342
ID	You shouldn't feel too bad if you do something that goes against what you believe if everyone else is doing the same thing.	.2071
ID	If I found myself with a group of people whose beliefs were very different from mine, I wouldn't know how to behave.	.1871
ID	I don't have a picture of the "real" me.	.1800
C	I often forget to listen to what others are saying.	.3907
C	I find it hard to speak my thoughts clearly.	.3904
C	In a discussion, I often find it hard to understand what people are trying to say.	.3053
C	People find it hard to figure me out from what I say.	.3213
C	Even if I know how to do something, I find it hard to teach someone else.	.2651
C	I would find it hard to give a talk in front of other people.	.2535
C	I would find it hard to write a letter explaining why I should be hired for a job.	.2391
C	I do not mix well with other people.	.2387
C	I find it hard to talk to someone I don't know.	.2295
C	I am not good at describing things in writing.	.2158
TR	There is no way to tell who you can trust.	.2986
TR	Most people would rather lie than tell the truth if they could get away with it.	.2266
TR	There are more bad people than good people.	.1928
TR	I find it hard to ask even my good friends for help.	.1828
R	A good teacher should be willing to give you extra help whether or not you've done your work.	.2029

Subscale	Item	Loading
R	If I find something on the sidewalk, it's mine because I found it.	.1863
SC	A person is responsible only for the happiness of his family, relatives, and close friends.	.1898

Factor B: Individual - Interpersonal Adequacy

TR	You can be sure people will be honest with you if you are honest with them.	.2828
TR	Even though it's hard to do, TV and newspapers give us the true facts about important events.	.2219
TR	If a man in government isn't honest, he won't get elected more than once.	.2082
TR	If a person is on trial in court, the decision will be fair no matter what kind of family he comes from.	.2054
TR	If you can trust a person in one way, you know you can trust him in all ways.	.1907
TR	People can be trusted no matter what they have to win or lose.	.1901
C	I have a talent for influencing people by just talking to them.	-.2910
C	I am good at explaining what I think or believe.	-.2352
C	I am good at acting out an idea without using any words.	-.2349
R	Your friends should be willing to lend you anything you want.	.2604
R	If you see a coat you think you might like to buy, the sales person should agree to save it for as long as it takes you to decide.	.2241
R	A judge should be allowed to judge a friend of his in court if he feels he can be fair.	.1842

Subscale	Item	Loading
SC	If I felt strongly about something, like race relations or better medical care for the poor, I would only work for it if there was a chance things could be changed quickly.	.2366
SC	If a sign says "Limited supply of fish in the pond -- catch no more than one per person", you can catch another if you have a good personal reason.	.2070
SC	Why work for something that others will enjoy if you won't be alive to enjoy it too?	.2021
SC	I would give a lot of money to medical research on cancer only if I knew they would find a cure in my life-time.	.1913
SC	A person is responsible only for the happiness of his family, relatives, and close friends.	.1887
SC	It's not really my problem if my neighbors are in trouble and need help.	.1822
TOL	I would not mind working closely on a job with a person whose skin color is different from mine.	.2453
TOL	It wouldn't bother me at all to work for a person whose skin color is different from mine.	.2143
W	It's more important for a job to pay well than for a job to be very interesting.	.2527
CH	When groups of people are kept from making a decent living, they might turn to crime.	.2096

Factor C: Social Adequacy

TOL	If I had a choice, I would prefer a blood transfusion from a person of the same skin color as mine.	.3135
TOL	I would rather not live in a neighborhood where there are people of different races or skin color.	.2706
TOL	A man who takes charity even though he could work shouldn't be allowed to vote.	.2630

Subscale	Item	Loading
TOL	Public buildings should have to have special ramps and other arrangements for people who need them.	.2211
TOL	I would not mind working closely on a job with a person whose skin color is different from mine.	.2178
TOL	I would spend the weekend at the home of a friend whose skin color is different from mine.	.2124
TOL	People of different races or skin color should get together at parties and dances.	.2092
TOL	People from unusual backgrounds, like Chinese-Americans, should have a chance to get elected to top government office.	.1913
TOL	It wouldn't bother me at all to work for a person whose skin color is different from mine.	.1899
SC	I often think about doing things so that people in the future can have things better.	.3060
SC	I would give money to a hospital even if it was not in the United States.	.2962
SC	Members of a religious club should never ask for money from people who aren't of the same religion.	.2137
SC	I would agree to a good plan to make a better life for the poor, even if it cost me money.	.1993
SC	If I had to choose between helping to raise money for a neighborhood project and enjoying my own free time, I'd keep my freedom.	.1875
SC	I would not want to give up owning a car and ride buses and trains to cut down on air pollution.	.1847
SC	My parents shouldn't have to pay taxes to feed the poor people of other states.	.1811
CH	Women should not be elected to top government positions.	.5081
CH	A man shouldn't cook dinner for his wife and children unless the wife is sick.	.2897
CH	Many more women should train for jobs usually held by men, such as dentist or engineer.	.1958

Subscale	Item	Loading
C	The letters I write tell a lot about me as a person.	.3031
C	I would not make a good actor or actress.	.2484
C	I am not good at describing things in writing.	.2299
C	I find it hard to talk to someone I don't know.	.2263
C	I would find it hard to write a letter explaining why I should be hired for a job.	.2011
C	In a discussion, I often find it hard to understand what people are trying to say.	.1883
W	I don't really think it's important to do my homework.	.2424
R	If an adult has a serious problem, he would be better off talking to a close friend than to a stanger who is trained to help people with problems.	.2193

Factor 1: Work and Communication

Subscale	Item	Loading
W	I am a hard worker.	.4382
W	I tend to be a somewhat lazy person.	.4203
W	I often don't finish work I start.	.3306
W	I tend to go from one thing to another before finishing any one of them.	.3104
W	I leave my homework unfinished if there are a lot of good TV shows on that evening.	.3089
W	I hate to admit it, but I give up on my work when things go wrong.	.2719
W	I often get behind in my work.	.2714
W	I find it hard to stick to anything that takes a long time to do.	.2311
W	I don't really think it's important to do my homework well.	.2253
W	I often don't get my most important work done because I've spent too much time on other work.	.1980
C	I usually understand exactly what people want from me.	.3756
C	I am good at explaining what I think or believe.	.3727
C	I would have no trouble explaining in a letter to a store why I didn't like something I bought there.	.2951
C	In an argument, I can make myself understood.	.2870
C	In a discussion, people find it easy to understand what I am trying to say.	.2794
C	I usually know what the teacher wants me to do.	.2653
C	In games, I am quick to understand when people act out an idea without words.	.2556
C	I am good at acting out an idea without using any words.	.2286

Subscale	Item	Loading
C	I have a talent for influencing people by just talking to them.	.2129
C	The letters I write tell a lot about me as a person.	.2108
C	I would not make a good actor or actress.	.1907
C	I would find it hard to give a talk in front of other people.	.1883
SC	I would agree to a good plan to make a better life for the poor, even if it cost me money.	.3063
SC	I often think about doing things so that people in the future can have things better.	.3038
SC	I would not mind if they used some of my tax money to repair highways, even if I didn't have a car.	.2836
SC	I would give money to a hospital even if it was not in the United States.	.2285
SC	I want to spend time working to save the world.	.2020
SC	I would want to pay taxes to run schools even if I did not have children.	.1847
TOL	I would not mind working closely on a job with a person whose skin color is different from mine.	.3556
TOL	It wouldn't bother me at all to work for a person whose skin color is different from mine.	.2976
TOL	I would spend the weekend at the home of a friend whose skin color is different from mine.	.2505
TOL	People of different races or skin color should get together at parties and dances.	.2483
TOL	I would rather not live in a neighborhood where there are people of different races or skin color.	.2145
TOL	I'm sorry to say it, but I don't think I could be close friends with a crippled person.	.2041
ID	I feel I'm becoming more and more like the sort of person that I want to be.	.3237

Subscale	Item	Loading
ID	I don't treat other people the way I feel I should.	.2463
ID	I'm the sort of person who can't do anything really well.	.2070
SR	When things have gone wrong for me, it is usually because of something I couldn't do anything about.	-.2205
SR	Someone often has to tell me what to do.	.2062
SR	Others seem more in control of their lives than I do.	.1935
TR	Never depend on anyone if you can help it.	-.2209
CH	A main cause of pollution is that we waste so much.	.2272
CH	If only rich men can become president, we should change the way people run for president.	.2060
CH	When groups of people are kept from making a decent living, they might turn to crime.	.1912

Factor 2: Trust

TR	If people are picked in a fair way to be on a trial jury, they are sure to reach a fair decision.	.2907
TR	If a man in government isn't honest, he won't get elected more than once.	.2890
TR	You can be sure people will be honest with you if you are honest with them.	.2746
TR	Even though it's hard to do, TV and newspapers give us the true facts about important events.	.2439
TR	If a person is on trial in court, the decision will be fair no matter what kind of family he comes from.	.2399
TR	The best person to give advice to you about whether you could get a better job is your boss.	.2297

Subscale	Item	Loading
TR	If you can trust a person in one way, you know you can trust him in all ways.	.2200
TR	A person who is completely trusting will have better experiences in life than someone who is not.	.1818
C	I would find it hard to give a talk in front of other people.	.2471
C	I would not make a good actor or actress.	.2447
C	Even if I know how to do something, I find it hard to teach someone else.	.1895
R	The best way to decide what to buy is to study advertisements.	.2303
SR	If you haven't been chosen as the leader, you shouldn't suggest how things should be done.	.2362
SR	In a group I prefer to let other people make the decisions.	.1973
W	I can't think of any kind of job I will really like.	.2260
W	Hard work is never fun.	.1895
TOL	I admire a person who doesn't question the decisions made by people higher up in life than he is.	.2551
ID	If I found myself with a group of people whose beliefs were very different from mine, I wouldn't know how to behave.	.1866

Factor 3: Social Commitment

SC	I would give money to a hospital even if it was not in the United States.	.2753
SC	Why work for something that others will enjoy if you won't be alive to enjoy it too?	.2691

Subscale	Item	Loading
SC	I would want to pay taxes to run schools even if I did not have children.	.2441
SC	I would agree to a good plan to make a better life for the poor, even if it cost me money.	.2409
SC	Time you spend helping others get what they want would be better spent trying to get what you want.	.2407
SC	It's not really my problem if my neighbors are in trouble and need help.	.2396
SC	I often think about doing things so that people in the future can have things better.	.2338
SC	My parents shouldn't have to pay taxes to feed the poor people of other states.	.2292
SC	I would not want to give up owning a car and ride buses and trains to cut down air pollution.	.2154
SC	It is more satisfying to work for something you want for yourself than to work for something wanted by a group you belong to.	.2067
SC	If I had the choice of competing against a friend so I could win all of a prize, or being part of a team with him and sharing the prize, I'd compete against him.	.1998
SC	If I had to choose between helping to raise money for a neighborhood project and enjoying my ow. free time, I'd keep my freedom.	.1958
SC	I want to spend time working to save the world.	.1920
SC	If I felt strongly about something, like race relations or better medical care for the poor, I would only work for it if there was a chance things could be changed quickly.	.1853
SC	I would give a lot of money to medical research on cancer only if I knew they would find a cure in my life-time.	.1852
SC	I would not mind if they used some of my tax money to repair highways, even if I didn't have a car.	.1830
TOL	I would rather not live in a neighborhood where there are people of different races or skin color.	.2102

Subscale	Item	Loading
TOL	I wouldn't mind living next door to a family that is much poorer than mine.	.2053
TR	I admire people who trust strangers as much as people they know.	-.2406
TR	A person who is completely trusting will have better experiences in life than someone who is not.	-.2006
SR	Even when I know how to do something, I ask for advice from others.	-.2172
ID	You shouldn't feel too bad if you do something that goes against what you believe if everyone else is doing the same thing.	.1946

Factor 4: Tolerance

TOL	I would rather not live in a neighborhood where there are people of different races or skin color.	.4713
TOL	People of different races or skin color should get together at parties and dances.	.3845
TOL	I would spend the weekend at the home of a friend whose skin color is different from mine.	.3640
TOL	I would not mind working closely on a job with a person whose skin color is different from mine.	.2675
TOL	If I had a choice, I would prefer a blood transfusion from a person of the same skin color as mine.	.2588
TOL	It wouldn't bother me at all to work for a person whose skin color is different from mine.	.2547
TOL	I feel a little sorry for people whose ideas about God are different from mine.	.2186
TOL	A man who takes charity even though he could work shouldn't be allowed to vote.	.1836
W	Hard work is never fun.	-.1900

Subscale	Item	Loading
W	I believe in working only as hard as I have to.	-.1828
SR	I feel very uncomfortable if I disagree with what my friends think.	.2368
SR	I don't know whether I like a new outfit until I find out what my friends think.	.2334
C	I have a talent for influencing people by just talking to them.	-.1879
R	Teachers should not expect as much homework from athletes who have to spend a lot of time at athletic practice.	.1995

Factor 5: Change

CH	Men should be able to train themselves for jobs usually held by women, such as elementary school teacher, nurse, and telephone operator.	.3087
CH	If only rich men can become president, we should change the way people run for president.	.2763
CH	If we don't encourage women to work, we are seriously reducing what the country could accomplish.	.2758
CH	Many more women should train for jobs usually held by men, such as dentist or engineer.	.2641
CH	It would be good if all the latest and best reading materials were quickly available to everyone through a computer.	.2527
CH	I would not want to talk to other students all over the world by way of satellite.	.2282
CH	When groups of people are kept from making a decent living, they might turn to crime.	.2056
CH	A main cause of pollution is that we waste so much.	.2004
CH	I would mind if a great many girls in my generation became lawyers, engineers, and business managers.	.1969

Subscale	Item	Loading
CH	If we limit the amount of money people can earn, we take away some of their freedom.	.1936
CH	If everyone is to be really equal, some people will have fewer advantages than they have now.	.1847
TOL	There are a lot of useful things for the rest of us to learn from having a group of foreign-born people in our neighborhood.	.3031
TOL	People from unusual backgrounds, like Chinese-Americans, should have a chance to get elected to top government jobs.	.2541
TOL	I would not mind working closely on a job with a person whose skin color is different from mine.	.2030
TOL	Allowing people to speak their ideas freely is a good thing, but it can't really help us find ways to improve our country.	.1861
TOL	I would spend a weekend at the home of a friend whose skin color is different from mine.	.1823
SC	Members of a religious club should never ask for money from people who aren't of the same religion.	-.2557
C	In an argument, I can make myself understood.	.2979
TR	If a person is on trial in court, the decision will be fair no matter what kind of family he comes from.	.2394
TR	A person who is completely trusting will have better experiences in life than someone who is not.	.2001
TR	If you can trust a person in one way, you know you can trust him in all ways.	-.1870
W	When a job turns out to be much harder than I was told it would be, I don't feel I have to do it perfectly.	-.2291
SR	When things go well for me, it is usually not because of anything I myself actually did.	.2254

Subscale	Item	Loading
R	A teacher who doesn't get papers back to the class on time shouldn't mind if your homework is late.	-.1999